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REMARKS

A. Rejections Under 35 U.S.C. § 103

A(I). Claims 1-4, 6-8 and 11-12

Claims 1-4, 6-8 and 11-12 have been rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,567,966 to Hwang in view of U.S. Patent No. 6,342,414 to Xiang.

Claim 1 has been amended to more clearly recite that which the Applicants regard as the invention. In particular, claim 1 is directed to a fully depleted FET device having a recessed body region that has a thickness of less than about 50 angstroms (Å) and forms respective junctions with source and drain regions without intervening extension regions (sometimes referred to in the art as lightly doped drain (LDD) regions).

Hwang teaches away from the claimed arrangement and, as a result, the claimed arrangement would not be obvious to one of ordinary skill in the art and there is no motivation to make the proposed combination.

The smallest thickness taught by Hwang for a body region is about 60 nanometers (nm). A thickness of 60 nm is an order of magnitude larger than the claimed thickness of 50 Å. Moreover, as indicated by Hwang at column 1, lines 14-18, as semiconductor film thickness decreases, the source/drain series resistance increases and such resistance can be higher than expected relative to the amount of film thickness reduction.

To address the issue of series resistance Hwang includes LDD regions 22 between the source and body and between the drain and body (figure 6 and column 2, lines 3-26). Hwang states that this structure, with the presence of the LDD regions, enables achievement of source/drain resistances that "makes possible" an operable device (column 2, lines 24-26).

In contrast, the claimed arrangement achieves an operable device with satisfactorily low parasitic resistance and reduced channel effects, but without extensions/LDD regions and a body thickness that is an order of magnitude smaller than Hwang (see, for example, page 4, lines 13-24).

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Therefore, it can be concluded that a reduction in body thickness by an order of magnitude over Hwang is more than what would be obvious through routine experimentation. It should also be apparent that formation of a device with such a thin body but without LDDs is unobvious and contraindicated by Hwang.

Although Xiang does show use of certain high-K dielectric materials for a gate dielectric, one attempting to make the proposed combination would still have to make unmotivated modifications to the combination to arrive at the claimed subject matter. Namely, the thickness of the body would have to be reduced by an order of magnitude relative to the thinnest body thickness value proposed by Hwang and achieve an operable device without LDDs.

For these reasons, independent claim 1 is considered to be allowable. Claim 2 has been canceled. Claims 3-4, 6-8 and 11-12 depend from claim 1 and are also considered to be allowable for at least the reasons discussed above.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

A(ii). Claim 5

Claim 5 has been rejected under 35 U.S.C. § 103(a) over Hwang in view of Xiang further in view of U.S. Patent No. 4,951,100 to Parrillo. Claim 5 depends from claim 1 and is considered to be allowable for at least the reasons set forth above. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

A(iii). Claim 9

Claim 9 has been rejected under 35 U.S.C. § 103(a) over Hwang in view of Xiang further in view of U.S. Patent No. 6,100,204 to Gardner. Claim 9 depends from claim 1 and is considered to be allowable for at least the reasons set forth above. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

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A(iv). Claim 10

Claim 10 has been rejected under 35 U.S.C. § 103(a) over Hwang in view of Xiang further in view of U.S. Patent No. 5,960,270 to Misra. Claim 10 depends from claim 1 and is considered to be allowable for at least the reasons set forth above. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

B. Drawings

The drawings have been objected to for failing to show reference numeral 26. Figure 1 has been amended to include reference numeral 26, which refers to an active region comprised of the source 22, the drain 24 and the body 14 (page 4, line 10). Enclosed is a replacement sheet showing the change to figure 1. Approval of the drawing change is requested.

C. Double Patenting

Claims 1-12 have been rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-13 of U.S. Patent No. 6,452,229. Enclosed herewith a terminal disclaimer and fee transmittal form authorizing charge of the associated fee to the deposit account identified below. Accordingly, reconsideration and withdrawal of the double patenting rejection is respectfully requested.

D. Conclusion

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned representative to expedite prosecution of the present application.

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If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0988, our Order No. G0639.

Respectfully submitted,

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By



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REPLACEMENT SHEET

Ultra-Thin Fully Depleted SOI Device and Method of Fabrication;
Zoran Krivokapic et al.; 10/081,361

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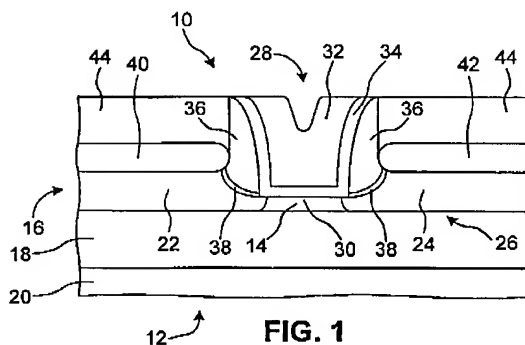


FIG. 1

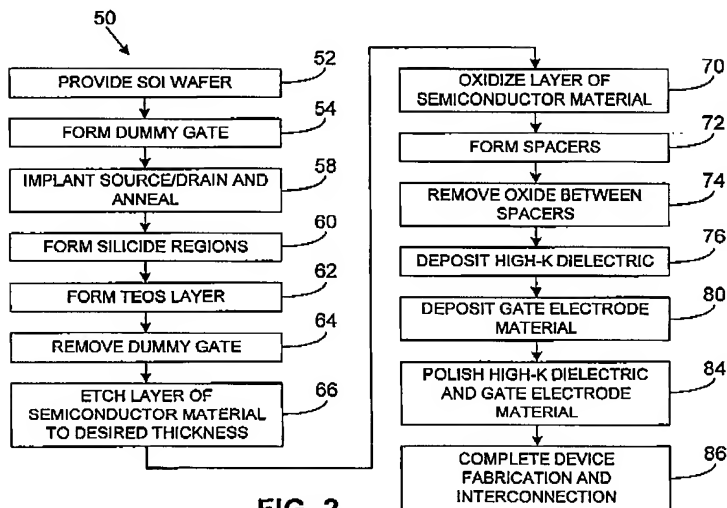


FIG. 2